

Ser. No. 09/877,344

Amendments to the Claims:

These claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method for assigning priority to streams of compressed video data, comprising ~~the steps of:~~

~~determining a relative importance of each macroblock in a video frame by reading a current P frame and examining motion vectors from previous and subsequent B frames and from a subsequent P frame, if it exists, to determine how often each macroblock in the current P frame acts as a reference macroblock for target macroblocks in the B and P frames based on how often each macroblock acts as a reference macroblock; and~~

prioritizing each of the macroblocks in the video frame based on the relative importance.

2. (canceled)

3. (currently amended) The method of claim [[2]] 1, ~~wherein the determining step comprises the further step of~~ further comprising determining how often target macroblocks in the subsequent P frame act as reference macroblocks.

4. (currently amended) The method of claim 1, ~~wherein the determining step includes the steps of~~ further comprising:

reading a current I frame; and

Ser. No. 09/877,344

examining motion vectors from the previous and subsequent B frames, and from ~~a~~ the subsequent P frame, to determine how often each macroblock in the current I frame acts as a the reference macroblock for the target macroblocks in the B and P frames.

5. (currently amended) The method of claim 4, ~~wherein the determining step comprises the~~ further comprising ~~step of~~ determining how often the target macroblocks in the subsequent P frame act as the reference macroblocks.

6. (currently amended) The method of claim 1, further ~~comprising the further steps of:~~
assigning B frame data a lowest relative priority;
assigning P frame data a priority relatively higher than B frame data; and
assigning I frame data a priority relatively higher than P frame data.

7. (currently amended) The method of claim 1, wherein if a current macroblock acts as a partial reference macroblock, ~~implementing the steps of:~~

determining an amount of pixel overlap between the current macroblock and a corresponding reference macroblock; and

scaling the relative importance of the current macroblock based on the amount of pixel overlap.

8. (currently amended) The method of claim 1, ~~comprising the further step of~~ assigning each macroblock into one of a plurality of streams based on the prioritization step.

9. (Original) The method of claim 1, wherein the relative importance of each macroblock is further determined based on values of a plurality of residual discrete cosine transform (DCT) coefficients of the macroblock.

10. (currently amended) A method for assigning priority to streams of compressed video data, comprising ~~the steps of:~~

determining an importance value for each macroblock in a plurality of video frames by reading a current P frame and examining motion vectors from previous and subsequent B frames and from a subsequent P frame, if it exists, to determine how often each macroblock in the current P frame acts as a reference macroblock ~~based on how often each macroblock acts as a reference macroblock;~~

grouping macroblocks into sets of macroblocks, and combining the importance values of the macroblocks within each set; and

prioritizing each set of macroblocks based on the combined importance values.

11. (Original) The method of claim 10, wherein each set of macroblocks comprises a complete frame of video data.

12. (canceled)

13. (currently amended) The method of claim 10, further comprising ~~wherein the determining step includes the steps of:~~

reading a current I frame; and

Ser. No. 09/877,344

examining motion vectors from the previous and subsequent B frames, and from ~~a~~ the subsequent P frame, to determine how often each macroblock in the current I frame acts as a the reference macroblock.

14. (original) The method of claim 10, wherein each set of macroblocks comprises a group of pictures.

15. (currently amended) The method of claim 10, wherein if a current macroblock acts as a partial reference block, ~~implementing the steps of:~~

determining an amount of pixel overlap between the current macroblock and a corresponding reference macroblock; and

scaling the relative importance of the current macroblock based on the amount of pixel overlap.

16. (original) The method of claim 10, wherein the importance value of each macroblock is further determined based on values of a plurality of residual discrete cosine transform (DCT) coefficients of the macroblock.

17. (currently amended) A system for encoding streams of compressed video data, comprising:
an importance analysis system for determining an importance value for each macroblock in a video frame by examining motion vectors from previous and subsequent B frames, and from a subsequent P frame if it exists, to determine how often each macroblock in a current P frame

Ser. No. 09/877,344

~~acts as a reference macroblock based on how often each macroblock acts as a reference-~~
macroblock; and

a system for prioritizing each of the macroblocks in the video frame based on the importance value determined for each macroblock.

18. (canceled)

19. (currently amended) The system of claim ~~18~~ 17, wherein the importance analysis system ~~further comprises an indirect analysis system that~~ determines how often macroblocks in the subsequent P frame are referenced by other video frames.

20. (currently amended) The system of claim 17, wherein the importance analysis system ~~includes an I frame analysis system that~~ examines motion vectors from the previous and subsequent B frames, and from a subsequent P frame, to determine how often each macroblock in a current I frame acts as a the reference macroblock.

21. (currently amended) The system of claim 20, wherein the importance analysis system ~~further comprises an indirect analysis system that~~ determines how often target macroblocks in the subsequent P frame act as reference macroblocks.

22. (original) The system of claim 17, further comprising an error protection system that adds error protection to a stream of macroblock data based on a priority assigned to each macroblock.

23. (previously presented) The system of claim 22, further comprising a stream decoding system that decodes the streams of macroblock data back into decoded video data.

24. (original) The system of claim 17, further comprising a partial macroblock analysis system that computes an overlap between a current macroblock and the reference macroblock and scales the importance value based on the overlap.

25. (original) The system of claim 17, further comprising a residual analysis system that further determines the importance value of each macroblock based values of a plurality of residual discrete cosine transform (DCT) coefficients of the macroblock.

26. (canceled)

27. (canceled)

28. (canceled)

29. (canceled)

30. (canceled)

31. (currently amended) A decoder system for decoding multi-priority compressed video data, comprising:

a system that correlates an error protection scheme to each of a plurality of data streams;
and

a system that interprets each data stream based on the error protection scheme;

wherein the error protection scheme is determined by an prioritization system that
prioritizes each data stream by analyzing a current P frame by examining motion vectors from
previous and subsequent B frames, and from a subsequent P frame if it exists, to determine how
often each macroblock in the current P frame acts as a reference macroblock based on how often
macroblocks act as reference macroblocks.

32. (currently amended) A program product stored on a recordable media, that when executed,
prioritizes streams of compressed video data, the program product comprising:

means for determining an importance value for macroblock data in video frames by
analyzing a current P frame by examining motion vectors from previous and subsequent B
frames, and from a subsequent P frame if it exists, to determine how often each macroblock in
the current P frame acts as a reference macroblock based on how often each of a plurality of
macroblocks act as reference macroblocks; and

means for prioritizing macroblock data based on the determined importance values.

33. (currently amended) The program product of claim 32, ~~wherein the determining means
comprises: further comprising means for analyzing a current P frame by examining motion
vectors from previous and subsequent B frames, and from a subsequent P frame if it exists, to
determine how often each macroblock in the current P frame acts as a reference macroblock; and~~

Serial No. 09/976,329

means for analyzing a current I frame by examining motion vectors from the previous and subsequent B frames, and from a the subsequent P frame, to determine how often each macroblock in the current I frame acts as a the reference macroblock.